DEPARTMENT OF BUSINESS
AND ECONOMIC DEVELOPMENT

JOHN WAIHEE
GOVERNOR
ROGER A. ULVELING
DIRECTOR
BARBARA KIM STANTON
DEPUTY DIRECTOR
LESLIE S. MATSUBARA
DEPUTY DIRECTOR

ENERGY DIVISION, 335 MERCHANT ST., RM. 110, HONOLULU, HAWAII 96813 FAX: (808) 531-5243

July 11, 1989

Ms. Janet Swift
Department of Land and Natural Resources
677 Ala Moana Boulevard, Rm. # 509
Honolulu, Hawaii 96813

Dear Ms. Swift:

This is to thank you for registering to attend the Enhancing Renewable Energy Development in Hawaii (EREDH) Workshop and to request your response to the enclosed pre-workshop questionnaire.

To ensure the most efficient use of time and obtain the fullest benefit from the workshop, we are requesting all registrants to record their thoughts on enhancing renewable energy development in Hawaii well in advance of the workshop dates. To complete the questionnaire, please follow the enclosed instructions and return your responses to the following address not later than **July 15, 1989:**

Energy Division, DBED
Attention: EREDH Workshop
335 Merchant Street, Room 110
Honolulu, Hawaii 96813

To further assist you in preparing your responses, we have enclosed an excerpted section of the 1981 Hawaii Integrated Energy Assessment. This section lists perceived barriers to alternate energy development and recommended strategies to overcome these barriers.

We are also requesting that all workshop registrants complete and return the enclosed "work-group preferences" form. A postage-paid, pre-addressed envelope is enclosed for your convenience. While we will make every attempt to assign you to the work-groups of your choice, this may not be possible in all cases. You will be notified of your work-group assignments when you check in at the Sheraton-Waikiki.

Thank you for your contribution to Hawaii's energy future. We look forward to your response to the questionnaire and to meeting you at the workshop.

David Rezachek

DAVID REZACHEK, P.E.
Conference Co-Coordinator

JOHN TANTLINGER, Ed.D.
Conference Co-Coordinator

DAR/JT:ml
Enclosures

P.S. We suggest that you consider keeping a copy of your questionnaire responses so you can bring it to the workshop.

ENHANCING RENEWABLE ENERGY DEVELOPMENT IN HAWAII: A WORKSHOP

AGENDA

Wednesday, July 26, 1989

7:15 a.m. **Registration and Coffee.**

8:00 a.m. **Opening Remarks.**
Speakers: **ROGER ULVELING,** Director, State of Hawaii, Department of Business & Economic Development;
Hawaii State **SEN. RICHARD MATSUURA**; and
Hawaii State **REP. MARK ANDREWS.**

8:30 a.m. **Experiences Outside Hawaii.**
Topics and Speakers:

Policy and Planning Issues:
JAMES HAWKE, Director, Nevada State Energy Offices.

Regulatory and Legal Issues:
EDWIN ING, President, American Wind Energy Association.

Financial Issues:
MARTHA BRILEY, President and CEO, Prudential Power Funding.

Environmental Issues:
AMORY LOVINS, Research Director, Rocky Mountain Institute.

Utility and Industry Issues:
JAMES BIRK, Director, Storage and Renewables Department, Electric Power Research Institute.

Public Advocacy Issues:
WILLIAM MEADE, Council on Renewable Energy Education, and RCG/Hagler, Bailly, Inc.

Wednesday, July 26, 1989 (con't.)

12:00 p.m. **Luncheon Address.**
Speaker: **AMORY LOVINS,** Research Director, Rocky Mountain Institute.

1:30 p.m. to 5:30 p.m. **Work Group Sessions.**
Topics and Session Chairpersons:

Policy and Planning Issues:
MAURICE KAYA, Energy Program Administrator, Hawaii Department of Business and Economic Development.

Regulatory and Legal Issues:
YUKIO NAITO, Chairman, Hawaii Public Utilities Commission.

Financial Issues:
THOMAS BEAUPRÈ, Vice President of Marketing, GECC Financial Corporation.

Environmental Issues:
STEPHEN HOLMES, Executive Director, Hawaii's Thousand Friends.

Utility and Industry Issues:
RICHARD McQUAIN, Vice President of Engineering, Hawaiian Electric Company, Inc.; and
JAMES McELVANEY, Vice President and General Manager, UNISYN of Hawaii.

Public Advocacy Issues:
CHARLES TOTTO, Executive Director, Hawaii Division of Consumer Advocacy.

6:00-8:00 p.m. **Reception (No-Host Bar).**

Thursday, July 27, 1989

8:00 a.m. **Work Group Sessions.**
Topics and Session Chairpersons:

Conservation and Demand-Side Man
CARILYN SHON, Energy Conservation Manager, Hawaii Department of Business an Development.

Geothermal:
MAURICE RICHARD, Hawaii Regiona Development Manager, Puna Geothermal Ve

Solar and OTEC:
CULLY JUDD, Director, Inter-Island Sola and
ANDREW TRENKA, Director, Energy a Resources Division, Pacific International Ce High Technology Research.

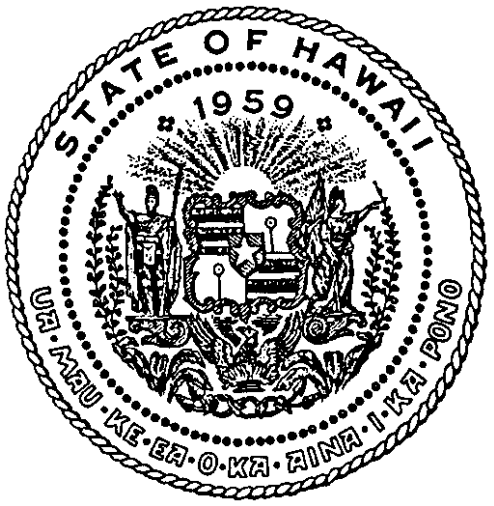
Biomass and Transportation Fuels:
TOM O'BRIEN, Alternate Energy Progra Hawaii Department of Business and Econom Development; and
VIC PHILLIPS, Manager, Bioresources a Environmental Programs, University of Hav

Wind:
ALFRED MANNING, President, Hawai Electric Renewable Systems, Inc.

Hydroelectric:
DEAN ANDERSON, Hawaii Projects M Bonneville Pacific Corporation.

12:00 p.m. **Luncheon Address.**
Speaker: **CHARLES IMBRECHT,** Ch California Energy Commission.

1:30-5:30 p.m.. **Plenary Session--Work Group Rep**



ENHANCING RENEWABLE ENERGY DEVELOPMENT IN HAWAII: A WORKSHOP

Sheraton-Waikiki Hotel
Honolulu, Hawaii
July 26 & 27, 1989

"The Road to Energy Independence"

ENHANCING RENEWABLE ENERGY DEVELOPMENT IN HAWAII: A WORKSHOP

THEME

"The Road to Energy Independence"

MISSION STATEMENT

The Enhancing Renewable Energy Development in Hawaii (EREDH) Workshop will be a public forum within which participants will identify impediments to renewable energy development in Hawaii and will develop a recommended plan of action to overcome these impediments. Recommendations developed in the workshop will ultimately be incorporated into a comprehensive package of legislative and policy initiatives designed to enhance renewable energy development and reduce petroleum dependence in Hawaii.

Workshop sessions will be organized within the contexts of individual renewable energy technologies, conservation, and the following areas of concern:

- Policy and Planning Issues
- Regulatory and Legal Issues
- Financial Issues
- Environmental Issues
- Utility and Industry Issues
- Public Advocacy Issues

Up-to-date information on the above areas of concern will be presented by national experts in these fields. Participants will be drawn from the general public; Federal, State, and local governments; and private energy industries.

OBJECTIVES

- To provide a public forum to examine the status of renewable energy development in Hawaii.
- To identify impediments to the commercial development of renewable energy in the State.
- To develop recommended plans of action to overcome impediments to renewable energy development in Hawaii.

CO-SPONSORS/CONTRIBUTORS

State of Hawaii
Department of Business and Economic Development
Division of Consumer Advocacy
Public Utilities Commission
Hawaiian Electric Company, Inc.
Hawaii's Thousand Friends
Inter-Island Solar Supply
University of Hawaii
U.S. Department of Energy, Pacific Site Office
Zond Pacific, Inc.

AGENDA ON REVERSE

WORK-GROUP PREFERENCES

PARTICIPANT: _____
NAME (last) (first) COMPANY/ADDRESS

Please indicate your preferences by placing an "X" for your first, second, and third choice of work-group assignment for both days of the workshop. In other words, you should have no more than one "X" in each of the three columns, per day.

Wednesday, July 26, 1989

1:30 p.m. to 5:30 p.m. **Work Group Sessions.** *Topics and Session Chairpersons:*

1st	2nd	3rd	
			Policy and Planning Issues: MAURICE KAYA, Energy Program Administrator, Hawaii Department of Business and Economic Development.
			Regulatory and Legal Issues: YUKIO NAITO, Chairman, Hawaii Public Utilities Commission.
		X	**Financial Issues:** THOMAS BEAUPRÈ, Vice President of Marketing, GECC Financial Corporation.
X			**Environmental Issues:** STEPHEN HOLMES, Executive Director, Hawaii's Thousand Friends.
			Utility and Industry Issues: RICHARD McQUAIN, Vice President of Engineering, Hawaiian Electric Company, Inc.; and JAMES McELVANEY, Vice President and General Manager, UNISYN of Hawaii.
	X		**Public Advocacy Issues:** CHARLES TOTTO, Executive Director, Hawaii Division of Consumer Advocacy.

Thursday, July 27, 1989

8:00 a.m. to 12:00 p.m. **Work Group Sessions.** *Topics and Session Chairpersons:*

1st	2nd	3rd	
	X		**Conservation and Demand-Side Management:** CARILYN SHON, Energy Conservation Program Manager, Hawaii Department of Business and Economic Development.
			Geothermal: MAURICE RICHARD, Hawaii Regional Development Manager, Puna Geothermal Venture, Inc.
X			**Solar and OTEC:** CULLY JUDD, Director, Inter-Island Solar Supply; and ANDREW TRENKA, Director, Energy and Resources Division, Pacific International Center for High Technology Research.
			Biomass and Transportation Fuels: TOM O'BRIEN, Alternate Energy Program Manager, Hawaii Department of Business and Economic Development; and VIC PHILLIPS, Manager, Bioresources and Environmental Programs, University of Hawaii.
		X	**Wind:** ALFRED MANNING, President, Hawaiian Electric Renewable Systems, Inc.
			Hydroelectric: DEAN ANDERSON, Hawaii Projects Manager, Bonneville Pacific Corporation.

QUESTIONNAIRE INSTRUCTIONS

Please complete the attached questionnaire by following the instructions listed below. The information you provide will be compiled with the responses of other workshop registrants into a handout to be distributed at the July 26 & 27, 1989, Enhancing Renewable Energy Development in Hawaii Workshop. The quality of the plans developed at the Workshop will depend heavily on the quality of information received via this pre-workshop questionnaire.

- First, we suggest that you review the example questionnaire response attached hereto.

- Next, you may want to **make several photo copies** of the blank questionnaire --you will need a blank form for each impediment to renewable energy development you wish to address.

- PLEASE ENSURE YOUR RESPONSES ARE LEGIBLE.

- **Item 1** of the questionnaire asks for the technology or issue category you are addressing. Workshop sessions will be organized within the context of individual renewable energy technologies, conservation, and the following areas of concern:
  - Policy and Planning Issues
  - Regulatory and Legal Issues
  - Financial Issues
  - Environmental Issues
  - Utility and Industry Issues
  - Public Advocacy Issues

- **Item 2** requests your description of an impediment to developing renewable energy. Please be as specific as possible.

- **Item 3** asks you to identify the action or actions required to overcome the impediment described in Item 2.

- **Item 4** asks you to recommend an agency to be responsible to accomplish the action or actions recommended in Item 3. If you recommend more than one action in Item 3, please recommend a lead agency for each action recommended.

- **Item 5** asks you to name an agency or agencies responsible to support the lead agency in accomplishment of the actions required. Again, please ensure the agencies you recommend correspond with a recommended action.

- **Item 6** requests you to identify resources (staffing and/or funding) which you believe will be required to accomplish the actions recommended in Item 3.

- **Item 7** requests that you recommend deadlines for completion of the actions you recommended.

Please consider keeping a copy of your questionnaire responses so you can bring it to the workshop.

QUESTIONNAIRE

1. **Technology** (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

2. **Impediment**:

3. **Action(s) Required**:

4. **Lead agency or organization**:

5. **Supporting agency(ies) or organization(s)**:

6. **Resources**:

7. **Deadline(s)**:

QUESTIONNAIRE

(Sample Response)

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues): *Regulatory and Legal Issues - Tax credits for photovoltaics.*

2. Impediment: *The levels of the existing State and Federal tax credits are insufficient to stimulate individual and business use of photovoltaics.*

3. Action(s) Required: *(1) The State should increase the solar energy tax credit to 25% of the purchase price.*

(2) The State's congressional delegation should introduce legislation to reinstate federal tax credits for residential and commercial solar systems.

4. Lead agency or organization: *Actions 1&2-Hawaii Department of Business and Economic Development.*

5. Supporting agency(ies) or organizations: *State Legislature, Congressional Delegation, U.S. Department of Energy, State Department of Taxation, and IRS.*

6. Resources: *No additional resources are required.*

7. Deadline(s): *State level - end of 1990.*

Federal level - end of 1991.

HAWAII INTEGRATED ENERGY ASSESSMENT

VOLUME VI

PERCEPTIONS, BARRIERS, AND STRATEGIES PERTAINING TO THE DEVELOPMENT OF ALTERNATE ENERGY SOURCES IN THE STATE OF HAWAII

DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

LAWRENCE BERKELEY LABORATORY
U.S. DEPARTMENT OF ENERGY

Hawaii Integrated Energy Assessment

PERCEPTIONS, BARRIERS, AND STRATEGIES PERTAINING TO THE DEVELOPMENT OF ALTERNATE ENERGY SOURCES IN THE STATE OF HAWAII

Funded by: U. S. Department of Energy, Grant No. EP-78-G-03-2100

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
STATE OF HAWAII
1980

4. BARRIERS AND STRATEGIES*

4.1. Introduction. The major personal, institutional, and social barriers to the implementation of alternate energy sources in Hawaii are a mixture of technical, administrative, and communications barriers.

The technical barriers, particularly, have been addressed and continue to have the attention of several groups. Among them are the State Energy Office, the Governor's Energy Conservation Council, the Legislature, the Counties, and the Solar Advisory Group (SAG). SAG prepared a report, "Solar Energy: Hawaii and the U.S. Islands of the Pacific", published by the Department of Planning and Economic Development Center for Science Policy and the Technology Assessment.

In the Solar Energy report is a summary of deterrents to solar commercialization. The summary opens with the following statement: "The single major deterrent to the adoption of solar technologies in the U.S. Pacific Islands is the lack of public awareness of the area's severe energy supply and distribution problems and solar energy's potential to alleviate them."

The administrative and communications barriers to the implementation of alternate energy sources in Hawaii are interrelated with the technical barriers. Administrative and communications barriers are based on:

- The complexity of energy facts and issues;
- Insufficient understanding of the policy-formation and decision-making mechanisms which govern our lives and the opportunities for change that they provide.

The strategies to overcome these barriers involve a public relations effort to achieve Education and Trust:

- Education - which encompasses all the ways in which a topic permeates an individual's thinking. For example, the social surveys in this report are at once a measure and a means of energy education.
- Trust - which conveys, "I have learned to respect your views in other matters, therefore I'll believe you in this matter because I'm not in a position to do all the necessary homework myself."

Energy is a complex topic which involves so many areas that a single leader with a simple solution cannot bring about the necessary changes. Rather, a very political, very cooperative coming together to focus on common tasks is required. Most of the means to overcome the principal

* This section was prepared by Judith Collins, a member of The Governor's Advisory Committee on Alternate Energy Development, The Hawaii Conservation Council, and the Advisory Committee for the State Energy Plan.

5. Financial barriers exist with banks, which are reluctant to loan money for solar improvements. Banks also seem to be inclined (along with electric utilities) to want to finance expensive solar systems, i.e., install or support systems that are so well built that little risk is involved.

   The reasoning behind the reluctance to loan money for new solar systems or retrofits is concerned with "over-improvements." The lenders worry that solar systems cost more than their market value. In the event of foreclosure and reselling of the house, a loss may occur.

6. The non-availability of minimum standards constitutes a barrier to solar development. Standards can be a barrier as much as an incentive, particularly in the way the federal standards-setting program is evolving. Small businesses can not afford the cost of having systems tested to insure they meet standards. Related problems are lack of adequate system warranties, consumer protection laws, and industry self-regulation standards.

7. Insurance companies construct barriers. Some companies will not insure solar installations in a house.

8. There is a substantial learning curve yet to be undergone by planners, architects, and engineers for designing and planning energy-efficient structures. Improvements are needed in designing retrofits, facing city blocks, and sloping of roofs.

9. Real estate appraisers lack knowledge in solar. Some will value a house at less than normal market value or give solar no value, despite the fact that solar homes can sell for more.

10. There is a great lack of consumer information about solar energy systems. Many people don't know where to go to buy solar equipment or what to look for. The absence of consumer information includes guides on how to do life-cycle costing as well as opportunity cost analysis by homeowners.

11. Attractive federal subsidies of solar energy development do not exist. These subsidies would ease solar development by having the federal government, for example, guarantee loans or eliminate sales taxes on solar equipment. There are also insufficient government procurement programs for implementing passive and active solar units in federal buildings.

12. Government and the media focus have been on active solar systems without consideration of the first-use of insulation and passive designs (insulate before insolate). The integration of insulation, passive systems, and active systems can reduce total energy costs considerably.

13. There is little public awareness of passive solar even though it is generally the least expensive solar technology. There is also virtually no federal solar budget for passive systems.

STRATEGY #4: An Energy Publication or newsletter similar to the HNEI newsletter encompassing all islands' activities, private, County and State, would greatly reduce the sense of "groping in the dark." An Energy Information and Referral Service is another possibility.

BARRIER #5: A substantial amount of work is being done on energy but there are overlaps, gaps, and a lack of a central focal point for the community to relate to.

STRATEGY #5: The creation of a directed Energy Center can provide information dissemination and leadership in the coordination of energy activities.

BARRIER #6: Energy decisions cross many political boundaries and require co-operation from many institutional levels.

STRATEGY #6: By building on the spirit of collective self-interest, greater participation and trust may be developed, paving the way for change.

BARRIER #7: Energy is viewed by many as being a separate entity in competition with other vital community goals in terms of money and priorities.

STRATEGY #7: By linking alternate energy goals to other major state goals and priorities (such as population centers, employment, tourist attractions, Native Hawaiian values, diminished crime, and a greater community pride), institutions, communities, and individuals can see how each goal feeds and supports the other.

BARRIER #8: Alternate energy development--especially solar and conservation--is still viewed by some as the panacea of reformers and hippies.

STRATEGY #8: By publicizing the endorsement and advocacy of alternate energy by respected specialists and members of the establishment, greater credibility is given to its development and use.

BARRIER #9: There is disbelief and blame due to the complexity of solutions and inconvenience that arise out of current shortages and prices of energy.

STRATEGY #9: It is important to emphasize that Hawaii has a growing population and a limited space with limited resources. A limit to growth--the supply and distribution of energy may have emerged. The energy use changes that are underway may bring about other changes for the better. Placing blame will slow the critical transition process. Taking concerted positive action on energy may well benefit other social problems.

in devices that harness natural energy sources to human needs...wary of claims that 'We do it all for you', many of us would rather do it for ourselves, and for our neighborhoods and communities."

The result of all the myriad attempts at increased self-reliance may bring about a beneficial transformation whose end cannot be centrally planned for.

BARRIER #12: The vocabulary of energy is so extensive and interpreted in so many ways, even by energy professionals, that communication is often hampered.

In the debate by the policymakers, these words may be heard: Btu's, fossil fuels, solar, conservation, exhaustible, renewable, insolation, insulation, centralized, decentralized, dispersed, diversity, disruption, low sulfur crude, synthetic fuels, and retrofit, among others.

STRATEGY #12: Acknowledge that the word problem does exist and anticipate the confusion that may occur. Agree on definitions when used orally and in print. It is not necessary that a person know the meaning of all the words. It is important to keep in mind how overwhelming the energy vocabulary is to those who are not in the field, and to know how much disagreement and misinterpretation exists even among energy professionals. The potential for confusion in the public mind must always be kept in mind.

BARRIER #13: Energy information and ideas abound. There are many spokesmen, issues, concepts, and definitions involved. It appears that the same energy reasoning can be used to justify opposite conclusions.

The topic seems complex because there are misunderstandings, conflicting information, disagreement, and disbelief. These sometimes mask the abundance of solutions, good ideas, cooperative alliances, and confidence.

STRATEGY #13: Build on the information inundation. Use the multiple concepts and issues to build bridges to an ever expanding energy constituency. Three illustrations of the communications potential of energy are:

An explanation of the Sun Day experience illustrates why there are so many reactions from so many directions.

It follows then that individuals have a very important place in energy communication.

The much maligned arts of the politician are of special value now.

collective self-interest--is of special value now because energy decisions cross so many lines. There is such a range and scale of energy projects that distribution by political boundaries doubles also as a very equitable public education and demonstration opportunity.

BARRIER #14: Forcing behavior changes instead of inducing them is not a popular way to establish new energy patterns.

STRATEGY #14: Emphasize the positive. Practice foresight. Use praise, recognition and incentives. "Doing better, not without" is a description of conservation that has more appeal than an emphasis on denial and sacrifice.

Generate and present energy ideas in ways that build on the positive (and be honest in acknowledging the negative). Energy issues do offer something for everyone. Self-interest has a powerful attraction. Inducements can be offered by those energy planners who practice foresight.

Mandates are often a last resort. The more time that is available to make a change, the more choices are available. An energy observer remarked, "Why is government spending all its time putting out brushfires instead of offering a Homestead Act?" Gas lines, rationing, odd-even plans, penalties, fines and restrictions are ways of putting out some energy brushfires. There are Homestead Acts around (tax incentives and Appropriate Energy Technology Grants are examples) and more are needed.

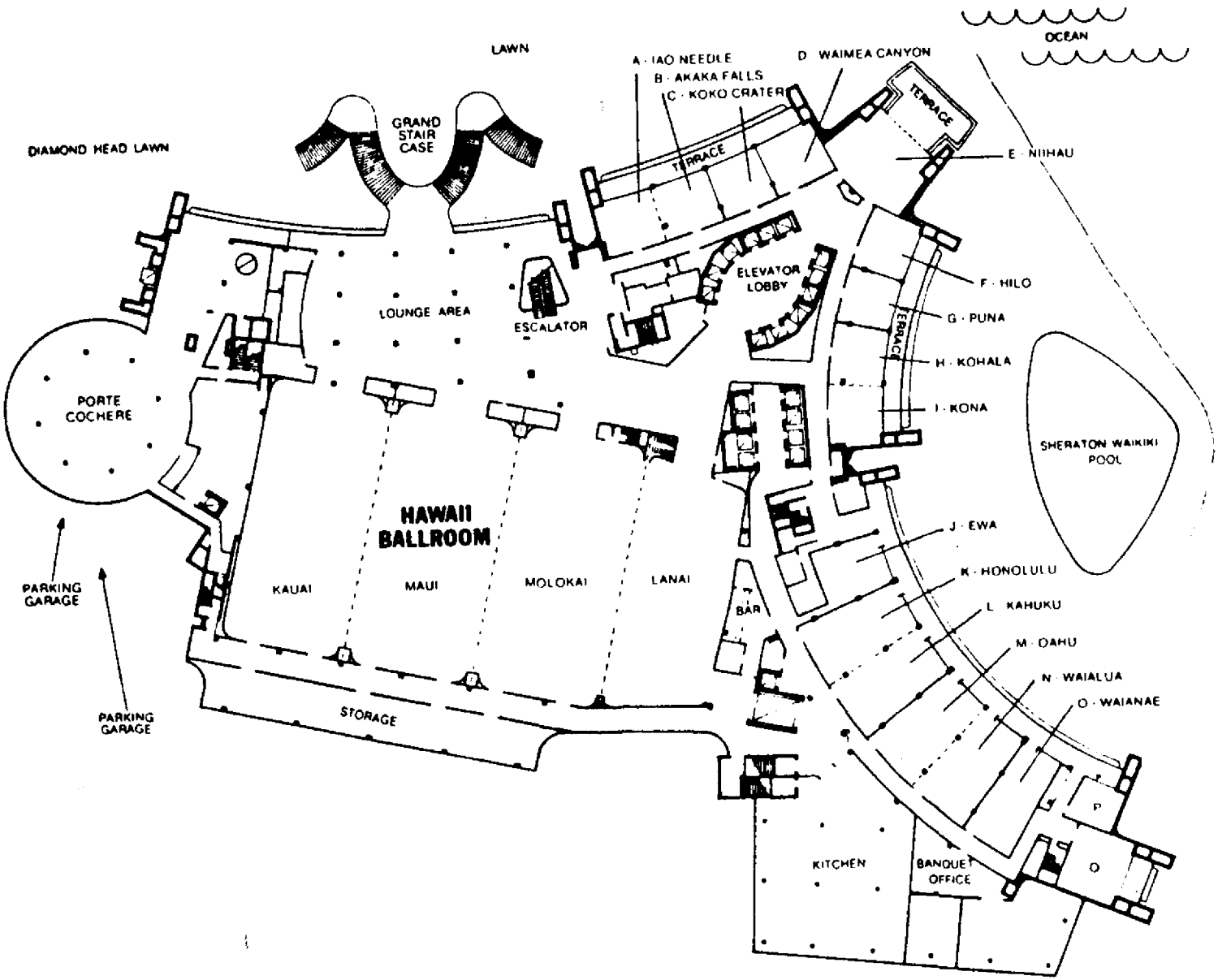
Praise, recognition, and economic incentives are inducements that are not very expensive and which can create a snowball effect.

BARRIER #15: There is resistance to change. There is widespread belief that the comfortable American consumer is not willing to give up his comforts. Further, if the consumer can be persuaded to change, it will take time.

STRATEGY #15: Induce change by making change attractive. Sell the idea of change on its own good merits.

The recent gas lines developments showed just how fast Americans can change their habits in order to get gasoline. A recent Harris poll found that the American public is ready for change and will make changes if he believes it is for his own good. The public does want to be kept informed. Education and trust are an important part of that process in which leaders require the assurance of voters and voters want to be reassured that the leaders will practice foresight and have some control over emerging energy events rather than delaying action and then simply responding to them.

Second Floor Layout



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DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT

ENERGY DIVISION, 335 MERCHANT ST., RM. 110, HONOLULU, HAWAII 96813 FAX: (808) 531-5243

89:0036J-580

July 19, 1989

MEMORANDUM

TO: Enhancing Renewable Energy Development in Hawaii (EREDH) Workshop Registrants

FROM: Mr. David Rezachek and Dr. John Tantlinger, Workshop Co-coordinators

SUBJECT: EREDH Preworkshop Questionnaire Summary

This is to forward for your information the enclosed summary of a preliminary content analysis conducted on the responses to the pre-workshop questionnaire which we have received to date.

We request that you carefully review the enclosed summary before you arrive at the EREDH Workshop, which will be conducted at the Sheraton Waikiki Hotel on July 26 and 27, 1989. We hope this information will serve as additional "food for thought" as you prepare to participate in what promises to be an important forum for Hawaii's energy future.

We look forward to meeting you at the Sheraton.

JT:jj

Enclosure

TABLE OF CONTENTS

EREDH WORKSHOP QUESTIONNAIRE SUMMARY -- AN OVERVIEW

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--POLICY AND PLANNING

2. Impediment:

1. Lack of firm direction and effort in energy planning due to overlapping roles of various organizations.
2. Energy as an issue has not received the priority or resources that corresponds to its importance.
3. No disincentives to fossil fuel use.
4. Energy approach appears to be short-term and politically sensitive to changes in administration priorities.

3. Action(s) Required:

1. Clarify roles based on statutes, provide representation on all energy matters by DBED. Inform other organizations of capabilities. Oversee state monies with the appropriate agencies.
2. Establish within the State a cabinet level Department of Energy and a appropriate leader. Provide an independent and objective evaluation of energy and its effects on the economy.
3. Increase tax on fossil fuels. Employ lower taxes or tax incentives for renewables resources and technologies.
4. Develop and adopt long-range plans that must be endorsed by future administrations. Use energy supply disruption analysis to illustrate effects on the economy. State rhetoric needs to be followed up with action. Importance of energy needs to be re-emphasized regularly within State government.

4. Lead agency or organization:

Governor (2), DBED (1, 3, 4)

5. Supporting agency(ies) or organization(s):

DBED, HNEI, PICHTR, the utilities, State Legislature, government agencies, and general public.

6. Resources:

Should be established through new Department of Energy budgetary process.

7. Deadline(s):

Viewed as programs of 12 month duration, 2-3 years, or a long-term on-going concern.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--POLICY AND PLANNING

2. Impediment:

5. The loss of federal price supports would not only adversely affect the sugar industry, but it would have a negative impact on Hawaii's energy supply.

6. Hawaii should not rely solely on geothermal energy.

7. The decrease in oil prices and the expiration of tax credits has had adverse impacts for renewable energy developments.

8. A "crisis management" attitude by society hampers the present development of renewable energy. Also, other issues compete keenly for the publics attention.

3. Action(s) Required:

5. An assessment, alternatives, plans, and costs need to be considered if the loss of substantial amounts of biomass generated electricity is a real possibility.

6. Funding should be maintained for geothermal, but support also needs to be provided for other renewable energy programs.

7. Reinstate tax credits for ten years. Base the amount of credits on system performance. Additional incentives or subsidies need to be considered if tax credits alone do not prove effective.

8. Energy conservation/awareness should become mandatory courses for both students and teachers. Teaching aids need to be developed and provided.

4. Lead agency or organization:

DBED

5. Supporting agency(ies) or organization(s):

Department of Health, Department of Taxation, State Legislature, HNEI, PICHTR, the utilities, the Counties, Public Utilities Commision, Department of Agriculture, Department of Education and the media (TV, radio and newspapers).

6. Resources:

Estimated $400,000 for programs development and inplementation.

7. Deadline(s):

Programs as short as 12 months, to 2-3 years, or longer.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--POLICY AND PLANNING

2. Impediment:

9. Running out of space for land fills and mass burning is considered environmentally hazardous.

10. Fossil fuel use has environmental impacts and costs that are overlooked by the general public on an individual basis.

3. Action(s) Required:

9. Encourage recycling through tax credits and incentives to businesses.

10. Taxes should be placed on emissions. Environmental standards need to be more stringent. Penalties for violations need to be severe enough to encourage better emissions controls. Adequate manpower should be provided to enforce compliance.

4. Lead agency or organization:

Department of Health

5. Supporting agency(ies) or organization(s):

DBED, State Legislature, Counties, and other state Departments

6. Resources:

9. Additional staff as State Recycling Coordinator
10. Enforcement staff in DOH

7. Deadline(s):

One year

QUESTIONNAIRE

1. Technology (e.g., Solar) **or Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--REGULATORY AND LEGAL

2. Impediment:

1. No existing tax credits for energy conservation measures and renewable energy systems.
2. The licensing and permitting processes for energy projects of any type in Hawaii are growing complex and taking longer.
3. Existing utility rate structures are based on a guaranteed return on investment on installed capacity. So thre is no utility incentive to institute and promote energy efficiency and conservation programs and to purchase power from independent power producers.
4. Lack of adequate regulation regarding co-generation.

3. Action(s) Required:

1. Various incentives should be available to avoid or reduce lost revenues in energy conservation programs. Incentives should be provided to those individuals and organizations which attempt to reduce their energy use. State should pass legislation to provide tax credits to businesses that are actively involved in energy conservation through specified and qualified measures. Federal tax credits for energy conservation should be enacted.
2. Licensing and permitting process need to be simplified and streamlined.
3. Utility rate structures need to be revamped. For firm commitments of power, which will reduce the need for future generation facilities capacity payments should be paid.
4. Rules for standby service are inadequate. Cogenerators and small power producers should be allowed to sell power in the immediate area and avoid utility regulation. Cogeneration should be sought several years before it's needed and encouraged through reasonable and attractive avoided cost offers. Third party financed projects should be allowed to sell power to company on whose site the project is located.

4. Lead agency or organization:

Department of Taxation (1), Counties (2), PUC (3,4)

5. Supporting agency(ies) or organizations:

Utilities, State Legislature, Dept of Taxation, IRS, Dept. of Energy, and Congressional delegation

6. Resources:

$100,000 to do research and report

7. Deadline(s):

12-24 month program sought at both state/federal levels

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--FINANCIAL

2. Impediment:

1. The cost effectiveness of renewable energy has not been proven.
2. People will not invest in alternative energy systems if the costs are increasing.
3. We spend too much on imported oil each year.
4. Renewable energy systems and conservation improvement are often capital intensive.
5. The typical short-sighted approach is to emphasize short-term cost and not to consider life-cycle costs.
6. Lack of data about the real costs of alternative energy sources.

3. Action(s) Required:

1. Adopt performance based contracting methods.
2. The state and federal governments should increase the tax credits for solar, wind, geothermal, energy conservation equipment, to a percentage of the installed cost sufficient to act as an incentive to invest in these systems. Provide financial assistance in the form of reduced interest loans.
3. The state should budget its tax revenues to fully subsidize solar energy uses. Furthermore, up-grades to solar systems should be credited to allow introduction of high-tech in solar research. Legislation requiring renewable energy equipment like solar water heaters in state and county housing projects.
4. Take external costs into account in determination of rate structures.
5. Take a more long-term approach to energy project financing. Update life-cycle cost for all new construction.
6. Perform more extensive cost/benefit analysis of competing energy resources to compare: (a) national security impacts (b) balance of payments (c) keeping money locally (d) cost of subsidies (e) environmental

4. Lead agency or organization:

DBED

5. Supporting agency(ies) or organization(s):

State Legislature, U. S. Congress, IRS, HECO, HNEI, PICHTR, State Tax Department.

6. Resources:

$110,000 for research analysis and report. Education of legislators, congress, tax departments, tax revenues.

7. Deadline(s):

ASAP to 6-12 months.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--FINANCIAL

2. Impediment:

7. The community at large must receive short term benefit (savings in money) before renewable energy resources will be seriously reviewed as an alternative.

8. There is not readily available funding for high potential renewable energy demonstration projects.

3. Action(s) Required:

7. Evaluate and determine external costs of various energy alternatives and apply these calculated cost factors in cooperative economic analysis.

8. A low interest or no interest State revolving fund should be established for the purpose of funding worthy projects. Legislative action would be required to establish a revolving fund similar to that of the State of California.

4. Lead agency or organization:

DBED

5. Supporting agency(ies) or organization(s):

Department of Budget and Finance, University of Hawaii-HNEI.

6. Resources:

One additional staff member to administer the program.

7. Deadline(s):

July 1, 1990.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--ENVIRONMENTAL ISSUES

2. Impediment:

1. Inadequate penalties for adverse environmental impacts from fossil fueled generating plants.
2. Geothermal and "H-power" have the potential to cause environmental pollution. Because of public awareness, there is strong public opposition.

3. Action(s) Required:

1. Provide a cost or penalty to energy provided by technologies based on the extent of their non-compliance with environmental standards as established by law combined with adequate incentives such as tax credits and exemptions to make renewables competitive. Adequate incentives for use of less polluting renewable energy alternatives such as tax credits should be provided, therefore legislative action required.
2. If pollution cannot be avoided, the technologies might not be used, adequate control equipment should be included in engineering plans. Public should be informed of environmental pollution of transporting or burning oil, or of dumping of garbage.

4. Lead agency or organization:

DOH (1), DBED (2)

5. Supporting agency(ies) or organizations:

Environmental Organizations, EPA, DBED, DOH

6. Resources:

1. More federal & state enforcement personnel.
2. Additional resources for incentives for renewables and for public education programs.

7. Deadline(s):

Federal & state law inacted by July 1, 1990.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--UTILITY AND INDUSTRY

2. Impediment:

1. Power purchase agreements are tied to the cost of oil. Low fuel cost means lower avoided costs. Availability of interconnect and power purchase contract rates (price per KWH) from Hawaii utilities is low.

2. Inadequate or bad cost information on capital cost of equipment, O&M costs and fuel costs for competing energy systems. Inadequate level of load forecasting by the utilities resulting in lack of capacity and utilities not offering enough for capacity from independent power producers.

3. Intermittent renewables produce unreliable energy although it can be of good quality. Utility will not implement its own generation via renewable system, unless its economically and technologically favorable.

3. Action(s) Required:

1. Promote and accept the concept of levelized PPA to encourage third party renewable energy producers (geothermal, wind, hydro, biomass). Lessen our dependence on fuel oil which would stabilize our avoided cost. A levelized power purchase structure must be developed which is easily understandable to the rate payer over the long term. Need to restructure and encourage new modes of utility, planning, rates, return, customers, powers, and distributed renewable energy systems.

2. Improve cost databases and maintain current data.

3. Combination of state funds, tax credits and rebates for a commercially sized energy storage project, coupled with renewables and connected to a utility grid. Pumped hydro systems solve both the intermittent power interface and the generic need for peak power although optimization may still be in the development stages. Utility should sell and service small-scale energy sources like solar panels.

4. Lead agency or organization:

PUC (1), HECO/Gasco (2,3)

5. Supporting agency(ies) or organization(s):

PUC, HDT, State Legislature, EVRF, DOE, military and planning offices, DBED, utilities, Gasco.

6. Resources:

None (1,3), additional staff (2)

7. Deadline(s):

End of 1990 (1,3), ongoing (2)

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--PUBLIC ADVOCACY

2. Impediment:

1. Lack of coordinated efforts between organizations involved in renewable energy research and development and energy conservation.
2. Public is not knowledgeable with respect to renewable energy matters versus fossil fuel use, nor understand the costs involved.
3. Apparent public apathy to issue of energy independence when controlled by the prospect of higher energy costs.
4. Some unscrupulous dealers, designers and manufacturers of renewable energy and energy conservation devices have often "oversold" and "under-delivered."

3. Action(s) Required:

1. Create the Hawaii Renewable Energy Association (HREA) and subgroups to integrate elements for promoting renewable energy, seeking funding, and carrying out energy education programs.
2. Greater emphasis on energy education at all levels of the population with a variety of programs.
3. Governor needs to play a larger role in mobilizing public opinion by vocalizing his commitment to renewable energy development through an intensive use of the media.
4. Setup a guideline of standards for devices/systems, and mechanisms to register complaints and provide consumer recourse and protection in case of deficient products/fraudulent suppliers.

4. Lead agency or organization:

DBED (1,2), Governor (3), Consumer-related agencies (4).

5. Supporting agency(ies) or organizations:

Industry, the utilities, energy-related associations, HNEI, PICHTR, State, Government and its agencies.

6. Resources:

$150,000 and use of existing staff.

7. Deadline(s):

Immediate (1,3), on-going (2,4).

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--PUBLIC ADVOCACY

2. Impediment:

5. Public sponsored housing is generally energy in-efficient.

3. Action(s) Required:

5. Utilize architects/engineers/builders with energy conservation/solar water heating expertise. Building design options should incorporate life-cycle cost analysis. Conduct energy audits, energy conservation retrofits, and energy monitoring. Obtain additional funds for implementation. Demonstrate promising renewable energy/conservation systems.

4. Lead agency or organization:
Government housing agencies.

5. Supporting agency(ies) or organizations:
DBED

6. Resources:
$50,000 to prepare integrated action plan.

7. Deadline(s):
On-going concern.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--CONSERVATION AND DEMAND-SIDE MANAGEMENT (DSM)

2. Impediment:

1. Lack of general knowledge about DSM by state agencies and utilities.
2. Lack of local expertise in DSM.
3. Utilities generally perceive strategic conservation as loss of revenues.
4. Lack of specific end-use data.
5. Specific DSM potential and DSM programs applicable to Hawaii have not been identified.

3. Action(s) Required:

1. Define overall policy direction, objectives, and criteria in line with the Hawaii State Plan.
2. Establish time-frame for implementation
3. Define incentives and disincentives for utilities. Cost recovery mechanism for conservation measures must be determined. Utilities must then define and propose specific programs and begin implementation of DSM plans.
4. Parallel analyses of utilities' DSM plans by state agencies.
5. DSM plan must have method for measuring, monitoring, and evaluating each DSM program.

4. Lead agency or organization:

PUC (1,2,3), DBED (4), utilities (5)

5. Supporting agency(ies) or organizations:

Consumer Advocacy, DBED, PUC, and utilities

6. Resources:

Use mainland expertise. State agencies and utilities should work together and have genuine shared objectives.

7. Deadline(s):

Time frame for program implementation should be determined by PUC immediately or legislation should be drafted for next session.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--CONSERVATION AND DEMAND-SIDE MANAGEMENT (DSM)

2. Impediment:

6. Insufficient consideration of large energy demand affects conservation or system capacity in new large hotels and other new construction developments.

7. The use of reflective glazing on multistory buildings to reduce heat gain and air-conditioning load causes adverse impacts on adjacent buildings.

3. Action(s) Required:

6. Increase the relative importance of energy conservation in the building permit evaluation/approval process. Require the use of the most efficient appliances and energy construction devices. Require the use of conservation system which can produce electricity/hot water/conditioning, etc.. Encourage the additional use of renewable energy system whenever possible.

7. Prior to building permit approval a study must be done to evaluate baseline energy use in adjacent building and model the effects of direct incident and reflective solar radiation on these structures.

4. Lead agency or organization:

DBED

5. Supporting agency(ies) or organizations:

HECO, C&C Bldg., Legislature, County Zoning Boards/Consumer Advocacy and Utilities.

6. Resources:

$100,000 to study and develop computer and other planning models for immediate implementation.

7. Deadline(s):

One year.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--CONSERVATION

2. Impediment:

8. Tenants of commercial buildings that are single-metered pay escalating rental costs and occupancy rates that include energy costs.

9. Relatively short rental periods do not encourage tenants to retorfit with more energy efficient measures or guarantee ample payback on the investment.

10. Many buildings are not energy efficient.

3. Action(s) Required:

8. Submeter tenants of commercial buildings. Require landlords to disclose energy costs. Tax energy cost transfers from landlord to tenant.

9. Demand-side programs to "influence" landlords to implement energy conservation measues.

10. Energy efficient building codes.

4. Lead agency or organization:

DBED

5. Supporting agency(ies) or organization(s):

DCAA and housing agencies

6. Resources:

No additional resources required.

7. Deadline(s):

One year.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--CONSERVATION AND DEMAND-SIDE MANAGEMENT (DSM)

2. Impediment:

11. Volatile markets. For example, price paid for aluminum cans was 70¢/lb, now about 38¢/lb. High shipping costs. Possible market saturation.

12. Problems with collection.

13. Educating people.

14. Need to get H-Power on-line.

3. Action(s) Required:

11. Determine extent of existing markets. Subsidize recycling industry if needed. Establish local markets for recycled materials.

12. Establish collection or pick-up points.

13.Educate and encourage the public to recycle products such as paper, glass, and aluminum.

14. Determine whether plastics should be recycled or used at H-Power to generate electricity because of high BTU content.

4. Lead agency or organization:
DBED

5. Supporting agency(ies) or organization(s):
City/County, RAH, DOH

6. Resources:
1. Need cost determination study (11,12).
2. No additional resources required (13,14).

7. Deadline(s):
2 years--max (11,12)
"Beef up" efforts now with more comprehensive program developed within one year. (13)
Six months (14)

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--GEOTHERMAL

2. Impediment:

1. Fumes and noise from geothermal plants.

2. Ownership rights to geothermal resources are unclear.

3. No planned transmission corridor for inter-island power cable.

4. Electric rates may be too high because of capital cost of plant and undersea cables.

3. Action(s) Required:

1. Minimize negative environmental impact.

2. Define owner rights to geothermal resources.

3. State should work with utilities to identify and secure, through eminent domain if necessary, such a corridor and lease it to any power producers.

4. The State should provide tax subsidies for power from geothermal sources.

4. Lead agency or organization:

Geothermal developers (1), DLNR (2), HECO (3), Department of Taxation (4)

5. Supporting agency(ies) or organization(s):

DLNR, HECO, State Legislature, Alu Like, Puna Citizens Group, DBED.

6. Resources:

Depends on ultimate size and use of subsidy (1), none (2,4), additional staff (3).

7. Deadline(s):

As plants are developed (1); 12 months (2,3), N. A. (4).

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--GEOTHERMAL

2. Impediment:

5. Community acceptance.

3. Action(s) Required:

5. a) Place greater emphasis on direct-use applications which have the potential to increase community acceptance as well as to create new industries and jobs in this economically disadvantaged area (Puna). Place greater emphasis on the methods geothermal developers will be using to control geothermal emissions. Geothermal developers need to quantify and compare relative emissions of geothermal facilities and the presently erupting volcano. A comparison of the relative emmissions and their health effects for geothermal and fossil fueled electricity generation needs to be conducted.

4. Lead agency or organization:

DBED

5. Supporting agency(ies) or organization(s):

HECO, DOH

6. Resources:

$250,000/year for direct use
$100,000/year for public information

7. Deadline(s):

On-going

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--SOLAR THERMAL and PHOTOVOLTAICS

2. Impediment:

1. Licensed solar contractors must by law hire a licensed plumber and licensed electrician to finalize job. Solar contractor is competent to do this work.
2. Restrictive Town-House/Condo Association agreements prohibiting solar energy devices.
3. No incentive for builders to include solar in new projects--also rejection of realistic tax incentives.
4. Uninformed public (not aware of alternatives).
5. Loan officers do not provide prospective homeowners with information about energy efficient provisions in FHA/VHA lending procedures--sometimes the loan officers themselves are unaware.

3. Action(s) Required:

1. Allow by license C-classification that a solar installer be allowed to do any work associated with the complete installation of a solar water heating system.
2. Legislate the elimination of all agreements retroactive to date of construction--they can no longer prohibit retrofit installations.
3. Provide sufficient incentives for builders/developers to include solar. This could be a one time tax incentive--or charge more for the use of conventional gas or electric water heaters.
4. Advocate, advocate, advocate! Utilize available funds for radio, tv, and newspaper ads.
5. Require lending agencies to tell all customers about any/all energy efficiency provisions in lending procedures.

4. Lead agency or organization:

DBED (4), Legislature (1, 2, 3, 5)

5. Supporting agency(ies) or organization(s):

Dept. of Commerce and Consumer Affairs, DBED, Legislature, Elected officials, Banks, Mortgage Load Companies, Department of Taxation, Contractors License Board.

6. Resources:

Use of existing resources

7. Deadline(s):

ASAP!

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--SOLAR THERMAL and PHOTOVOLTAICS

2. Impediment:

6. New housing construction, particularly in leeward areas does not adequately utilize solar water heating.
7. Solar related activities are divided between the Energy Conservation Branch and the Alternate Energy Branch. This can lead to an overlap in activities, non-performance of some activities, and confusion of roles.
8. No guarantee of solar access for installers of solar thermal and photovoltaic systems.

3. Action(s) Required:

6. Requirement for solar water heating in all government funded/subsidized housing in areas with adequate insolation; Requirement for preplumbing to allow future installation of solar systems in all housing in areas with adequate insolation.
7. Consolidate all solar related activities under the Alternate Energy Branch.
8. a) Solar legislation should be passed which guarantees future solar access;
   b) This legislation should protect construction which might shade solar devices for a significant amount of time and/or require owners/builders of adjacent structures to reimburse solar system owners for reductions in performance.

4. Lead agency or organization:

DBED

5. Supporting agency(ies) or organization(s):

DBED, State Legislature, County Zoning Boards/Building Code Agencies.

6. Resources:

$10,000 for study of similar programs in other states.

7. Deadline(s):

Immediately (7), 1990 Legislative Session (6,8).

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--SOLAR THERMAL and PHOTOVOLTAICS

2. Impediment:

9. High initial cost of a system.

3. Action(s) Required:

9. a) Make solar water heating an option for all new housing construction in areas with adequate insolation;

b) Cost of system added to mortgage which will increase the monthly payment;

c) Utility energy costs will decline due to substitution of solar energy for electrical energy;

d) Total mortgage plus energy costs will decrease with solar option (vs. non solar);

e) Property value will increase immediately;

f) Some loan programs are available relating to this which will allow prospective home buyers to qualify for a higher mortgage;

g) The increased downpayment needed (20% of solar system) will be partially offset by tax credits on the system.

4. Lead agency or organization:

State Housing Agencies

5. Supporting agency(ies) or organization(s):

DBED, Solar Industry

6. Resources:

Use of existing resources.

7. Deadline(s):

Begin immediately

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--BIOMASS

2. Impediment:

1. Identification of suitable and available land for biomass production

2. Markets for co-products of integrated biomass production system, end-use application.

3. Development of harvesting/processing equipment suitable for Hawaiian conditions.

4. Identification of conversion process bottlenecks and technical solutions.

5. Existing physical and institutional infrastructure.

3. Action(s) Required:

1. HNRIS database and analysis

2. Market analysis conducted jointly with industrial partners and university staff.

3. Visit other sites outside Hawaii to witness pertinent equipment in operation; arrange transport of equipment to Hawaii for trials. Develop equipment at UH-Agricultural Engineering shop.

4. Tie into above market analysis, conduct literature review, site visits, then move from bench-scale to pilot (pre-commercial) stage.

5. Perhaps a joint project between the Public Works Department and Hawaiian Electric.

4. Lead agency or organization:

HNEI (1, 4), DBED (2), UH-Ag. Engr (3), Public Works (5)

5. Supporting agency(ies) or organization(s):

DLNR, HSPA, USFS, OnSite, Energy, sugar and oil industries, utility industries, DOE.

6. Resources:

Part time support for 1 staff each from lead agencies; $100,000 to prepare above package to commercialize biomass in private sector is optimistic.

7. Deadline(s):

Advantageous to have a 40 MW peaking period hydro system on Oahu by the end of 1991.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--BIOMASS

2. Impediment:

6. Recycling vs. waste-to-energy. Although combustion of municipal solid waste does reduce the volume which needs to be land-filled and does produce some energy there are also some associated problems. Emissions need to be carefully and adequately controlled and costs are high (as has been demonstrated by HPOWER). In spite of the fact that waste-to-energy plants may be needed in some areas because of poor waste planning, indications are that recycling could save as much energy as could be produced by waste-to-energy plants.

3. Action(s) Required:

6. a) Trash disposal fees should reflect actual costs;
   b) Recycling should be encouraged;
   c) Subsidies should be gradually phased out;
   d) Changes in the types and amounts of packaging materials should be demanded;
   e) The State and Counties should join together to create a centralized storage facility for recycled materials, take advantage of large scale shipments of these materials, and reduce price fluctuations through an escrow fund created with increased tipping fees and surplus generated when prices for recycled materials is relatively high.

4. Lead agency or organization:

Counties

5. Supporting agency(ies) or organization(s):

DBED, DOH

6. Resources:

$50,000

7. Deadline(s):

12 months

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--TRANSPORTATION

2. Impediment:

1. Transportation is the largest user of petroleum in Hawaii and on the mainland. Ford and GMC have lobbied heavily to reduce Corporate Average Fuel Economy (CAFE) standards for automobiles and light trucks. Implementation of these standards has helped to significantly reduce the amount of petroleum which would have been used without the standard.

3. Action(s) Required:

1. a) Lobby the U. S. Congress to prevent any attempts to reduce CAFE standards and possibly to introduce more stringent standards;

b) Encourage the use of the most efficient vehicles in State and Federal fleets;

c) Begin an aggressive program for the substitution of alcohol fuels and flexible-fueled vehicles for gasoline and diesel fueled vehicles;

d) Encourage the use of van pools and busses;

e) Encourage the local production and use of small commuter, electric vehicles.

4. Lead agency or organization:

DOT

5. Supporting agency(ies) or organization(s):

DBED

6. Resources:

$250,000/year.

7. Deadline(s):

10 years.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--TRANSPORTATION

2. Impediment:

2. Electrical energy self-sufficiency has received much of the emphasis in state energy research, development, demonstration and commercialization. However, transportation fuel accounts for more than half of Hawaii's energy use.

3. Action(s) Required:

2. a) Place greater emphasis on replacement and reduction or use of transportation fuels;
b) use extensive State vehicle fleets (and county and federal fleets) for demonstrations of alternate fuels such as methane, methanol, and ethanol;
c) Make State (County, Federal) lands available for biomass plantations;
d) Educate the public on energy conservation in transportation;
e) Lobby for more fuel efficient vehicles (at the Federal level);
f) Use fuel efficiency as the primary criterion in selection of fleet vehicles;
g) Disseminate information via elaborate communications network and extension services;
h) Assist in planning for and begin transition to alternative-fueled vehicles.

4. Lead agency or organization:

DOT

5. Supporting agency(ies) or organization(s):

Department of Agriculture, Department of Forestry, DBED, Counties

6. Resources:

$100,000

7. Deadline(s):

36 months

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--WIND

2. Impediment:

1. Intermittent nature and poor quality of wind-generated electric power have limited the allowable penetration of this power into the electricity supply system.

3. Action(s) Required:

1. Investigate the use of various energy storage strategies in conjunction with the use of wind (and other renewable energy technologies). In particular, provide additional support to pumped-hydro energy storage projects and control strategies.

4. Lead agency or organization:

DBED

5. Supporting agency(ies) or organization(s):

U. S. Department of Energy, HNEI, PICHTR

6. Resources:

$250,000

7. Deadline(s):

Long term research (3-5 years) is needed. Action to begin with 1990 Legislative Session.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--HYDROELECTRIC

2. Impediment:

1. Utilities unwilling to take responsibility for interfacing with intermittent sources of electricity.
2. Pumped hydro systems--optimization of some of the interfaces such as combined pumping/ generating, and switching, may still be in the developmental stages.
3. Initial capital cost of project, the mandating of fish passages or fish ladders at certain sites, effects of multiple projects on the river basin, and securing the necessary land and water rights.
4. New hydro capacity does not appear to be cost effective.
5. Health, safety, reliability, environmental, use of non-renewable resources, social, economic, political, flexibility, and technical innovation aspects.

3. Action(s) Required:

1. Rather than just stand idly by while the utilities sleep on it for years, why not invite the Corps of Engineers and Bureau of Reclamation to take a shot at it. Their presence here may stimulate others to react, either positively or negatively, by jumping on the problem, jumping in to prevent hydro projects, or backing off until the Feds decide to pay for it all, which may be a long time.
2. Pumped hydro systems offer both storage and peak firm, dispatchable peaking power, so they solve both the intermittent power interface and the generic need for peak power. Need more research and development in this field.
3. Further some of the projects by allowing front loaded payments enable some of these projects to have increased cash flow in the early years, when it is most needed.
4. Offer cost based buy-back rates to anyone wishing to develop hydro power in the service territory for sales to utility.
5. Various actions required.

4. Lead agency or organization:

DBED-Energy Division

5. Supporting agency(ies) or organization(s):

USDOE Pacific Site Office, HEI and its subsidiaries, PUC, DCAA, Division of Consumer Advocacy.

6. Resources:

Pumped Hydro--expert (2)

7. Deadline(s):

Advantageous to have a 40 MW peaking period hydro system on Oahu by the end of 1991.

QUESTIONNAIRE

1. Technology (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

OVERVIEW--HYDROELECTRIC

2. Impediment:

7. Hydroelectric projects of very small (micro-hydro) to large-scale require essentially the same permitting process and associated costs. These costs and efforts can be more easily distributed and justified with large-scale projects but often make small-scale projects uneconomical.

3. Action(s) Required:

7. a) Establish a system size cutoff where no permits are required (eg. 10-15 kW):
   b) Make permit requirements correspond to project size;
   c) Develop preapproved sites and generic plans for micro-hydro projects;
   d) Develop simplified procedures/checklists for permitting.

4. Lead agency or organization:

C & C Permitting Departments

5. Supporting agency(ies) or organization(s):

DBED

6. Resources:

$25,000 for study

7. Deadline(s):

12 months.

QUESTIONNAIRE

1. **Technology** (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

2. **Impediment**:

3. **Action(s) Required**:

4. **Lead agency or organization**:

5. **Supporting agency(ies) or organization(s)**:

6. **Resources**:

7. **Deadline(s)**:

QUESTIONNAIRE

1. **Technology** (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

2. **Impediment**:

3. **Action(s) Required**:

4. **Lead agency or organization**:

5. **Supporting agency(ies) or organization(s)**:

6. **Resources**:

7. **Deadline(s)**:

QUESTIONNAIRE

1. **Technology** (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

2. **Impediment**:

3. **Action(s) Required**:

4. **Lead agency or organization**:

5. **Supporting agency(ies) or organization(s)**:

6. **Resources**:

7. **Deadline(s)**:

DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT

JOHN WAIHEE
GOVERNOR
ROGER A. ULVELING
DIRECTOR
BARBARA KIM STANTON
DEPUTY DIRECTOR
LESLIE S. MATSUBARA
DEPUTY DIRECTOR

ENERGY DIVISION, 335 MERCHANT ST., RM. 110, HONOLULU, HAWAII 96813 FAX: (808) 531-5243

PARTICIPANT'S EVALUATION OF THE ENHANCING RENEWABLE ENERGY DEVELOPMENT IN HAWAII WORKSHOP

RESPONSE SCALE:
1 = A VERY SMALL EXTENT
2 = A SMALL EXTENT
3 = SOME EXTENT
4 = A GREAT EXTENT
5 = A VERY GREAT EXTENT

1.	To what extent do you believe that this workshop will lead the accomplishment of its stated objectives?	**1**	**2**	**3**	**4**	**5**
2.	To what extent did the nature of the presentations fit the workshop's theme and stated objectives?	**1**	**2**	**3**	**4**	**5**
3.	To what extent was the technical level of presentations appropriate for you?	**1**	**2**	**3**	**4**	**5**
4.	To what extent did promotional materials influence your decision to attend the workshop?	**1**	**2**	**3**	**4**	**5**
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6.	To what extent was the scope of the program inclusive of applicable renewable energy technologies?	**1**	**2**	**3**	**4**	**5**
7.	To what extent were the work group chairpersons appropriate to this forum?	**1**	**2**	**3**	**4**	**5**
8.	To what extent were the facilitators helpful in achieving work group objectives?	**1**	**2**	**3**	**4**	**5**
9.	To what extent were the luncheon speakers appropriate to this forum?	**1**	**2**	**3**	**4**	**5**
10.	To what extent did the hotel's meeting facilities provide an effective conference environment?	**1**	**2**	**3**	**4**	**5**

11. Please list three things you liked best about the workshop.
1._____
2._____
3._____

12. Please list three things you believe should have been done differently at the workshop.
1._____
2._____
3._____

13. In which work groups did you participate?

_____ _____
Wednesday, July 26, Work Group? Thursday, July 27, Work Group?

Instructions: Please take a few minutes to fill in this questionnaire concerning your area(s) of particular interest in the field of alternative/renewable energy. Thank you for your assistance.

☑ **Please check the appropriate item(s).**

- ☐ All forms of alternative/renewable sources of energy **(If you check this item, STOP. Do not fill out remaining items.)**
- ☐ Absorption/Desiccant Cooling
- ☐ Alcohol Fuels
- ☐ Biogas (Anaerobic Digestion)
- ☐ Biomass
- ☐ Building Energy Codes/Standards
- ☐ Coal
- ☐ Cogeneration
- ☐ Conservation/Energy Management
- ☐ Electric Vehicles
- ☐ Energy Storage/Petroleum Reserve
- ☐ Energy Storage Systems (Batteries, Pumped Hydro, etc.)
- ☐ Environmental Issues
- ☐ Geothermal
- ☐ Heat Engines (e.g., RC, Stirling)
- ☐ Heat Pumps
- ☐ Hydroelectric
- ☐ Hydrogen/Fuel Cells
- ☐ Lighting
- ☐ Methane Production (or Biogas)
- ☐ Municipal Solid Waste/Wastewater Treatment
- ☐ Non-Residential Energy Conservation Strategies
- ☐ Ocean Energy (Waves, Tides, Currents)
- ☐ OTEC — Ocean Thermal Energy Conversion
- ☐ Passive Architecture
- ☐ Policy/Planning/Education (Least Cost Utility Planning)
- ☐ Power Plants
- ☐ Project Financing
- ☐ Purpa/Government Regulations
- ☐ Recycling
- ☐ Refrigeration/Air Conditioning
- ☐ Residential Energy Conservation Strategies
- ☐ Solar-Photovoltaic
- ☐ Solar Thermal
- ☐ Synfuels
- ☐ Transmission (e.g., Inter-Island Submarine Cable)
- ☐ Transportation Fuels
- ☐ Utilities
- ☐ Waste Heat Recovery
- ☐ Wind

Name	Address	Telephone

QUESTIONNAIRE

1. **Technology** (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

2. **Impediment**:

3. **Action(s) Required**:

4. **Lead agency or organization**:

5. **Supporting agency(ies) or organization(s)**:

6. **Resources**:

7. **Deadline(s)**:

QUESTIONNAIRE

1. **Technology** (e.g., Solar) or **Issue category** (e.g., Regulatory and Legal Issues):

2. **Impediment**:

3. **Action(s) Required**:

4. **Lead agency or organization**:

5. **Supporting agency(ies) or organization(s)**:

6. **Resources**:

7. **Deadline(s)**:

To. Sy & Ow

RECEIVED
AUG 25 1989
GEOTHERMAL/CABLE
PERMIT CENTER

Office of the Mayor

BERNARD K. AKANA
Mayor

August 14, 1989

RECEI
AUG 17
OFFICE OF S
PLANNING

Mr. Harold S. Masumoto
Director
Office of State Planning
Office of the Governor
State Capitol
Honolulu, HI 96813

Dear Mr. Masumoto:

Thank you again for volunteering to serve as an ex-officio member of my Geothermal Advisory Commission. I appreciate your willingness to assist me and so generously offer your time.

As has been formerly indicated the Administration of the County of Hawaii appreciates the need for the responsible development of renewable energy, including geothermal. Exactly how this is to happen is an evolving process in which you and your fellow Commissioners play an important role.

At the present time we are discussing the State/County division of responsibility regarding the geothermal process and are working to establish guidelines for an Advisory Commission. Hopefully, these matters can be resolved in the very near future and the Commission can begin the work at hand.

Your patience with this delay is appreciated. You will be hearing from Lynn C.Z. Maunakea, Director of Research and Development as information is available.

Again, thank you.

Sincerely,

Bernard K. Akana
Mayor

JOHN WAIHEE
GOVERNOR
ROGER A. ULVELING
DIRECTOR
BARBARA KIM STANTON
DEPUTY DIRECTOR
LESLIE S. MATSUBARA
DEPUTY DIRECTOR

DEPARTMENT OF BUSINESS
AND ECONOMIC DEVELOPMENT

ENERGY DIVISION, 335 MERCHANT ST., RM. 110, HONOLULU, HAWAII 96813 FAX: (808) 531-5243

August 1, 1989

Enhancing Renewable Energy Development in Hawaii (EREDH)
Workshop
Participant Directory and Evaluation Form

Dear EREDH Workshop Participant:

Thank you for your valued participation in what many attendees indicated was the most successful workshop on renewable energy in Hawaii in many years. Your participation contributed to the EREDH Workshop's resounding success.

Enclosed please find your copy of the EREDH Participant Directory. I hope it will be useful to you as a reference to build upon relationships that began at the workshop.

Enclosed you will also find a workshop evaluation form tailored to your level of participation; i.e., Participant, Work-Group Session Chair and Speaker, or Workshop Planner. While some of you did take time at the workshop to fill out these forms, many more did not. If you did not already fill out a form, please take this opportunity to provide us with your evaluation of the workshop while the experience is still fresh in your mind. Your ideas and opinions are vital to the preparation of a comprehensive workshop evaluation report to be furnished to our co-sponsors and the Hawaii State Legislature. For your convenience, I have enclosed a post-paid addressed envelope in which you can return your completed evaluation form.

Again, thank you for your participation in the EREDH Workshop.

Aloha,

John Tantlinger, Ed.D.
Energy Planner

JT:ml

Enclosures

DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT

JOHN WAIHEE
GOVERNOR
ROGER A. ULVELING
DIRECTOR
BARBARA KIM STANTON
DEPUTY DIRECTOR
LESLIE S. MATSUBARA
DEPUTY DIRECTOR

ENERGY DIVISION, 335 MERCHANT ST., RM. 110, HONOLULU, HAWAII 96813 FAX: (808) 531-5243

PARTICIPANT'S EVALUATION OF THE ENHANCING RENEWABLE ENERGY DEVELOPMENT IN HAWAII WORKSHOP

RESPONSE SCALE:
1 = A VERY SMALL EXTENT
2 = A SMALL EXTENT
3 = SOME EXTENT
4 = A GREAT EXTENT
5 = A VERY GREAT EXTENT

1.	To what extent do you believe that this workshop will lead the accomplishment of its stated objectives?	**1**	**2**	**3**	**4**	**5**
2.	To what extent did the nature of the presentations fit the workshop's theme and stated objectives?	**1**	**2**	**3**	**4**	**5**
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